

## AD-131 GE

2 CCD High Dynamic Range camera

**C3** Camera Suite  
 Unlimited  
 Digital  
 Switchability



- *Two monochrome prism-mounted progressive scan CCDs (1/3")*
- *Choice of high dynamic range, high frame rate, high S/N, or PIV mode*
- *1296 (h) x 966 (v) active pixels per channel*
- *3.75 μm square pixels*
- *12-bit, 10-bit or 8-bit output – single or dual-channel*
- *31 frames per second with full resolution*
- *Vairable partial scanning with user-definable height and starting line*
- *Programmable exposure from 11.49μs to 31.761ms*
- *GenICam Exposure Time Abs, pulse controlled, and auto shutter modes*
- *Sequence trigger mode for on-the-fly change of gain, exposure and ROI*
- *Built-in blemish compensation and shading compensation*
- *Look-up table (LUT) for gamma adjustment*
- *Separate AGC (automatic gain control) for each channel*
- *LVAL synchronous/asynchronous operation (auto-detect)*
- *Programmable GPIO with opto-isolated inputs and outputs*
- *Comprehensive control tool and SDK for Windows XP/Vista/7*

**GiGE**<sup>™</sup>  
 VISION



www.jai.com

See the possibilities

# Specifications for AD-131 GE

Specifications		AD-131 GE
Sensor	# 1 # 2	1/3" monochrome IT CCD (ICX447) 1/3" monochrome IT CCD (ICX447)
Pixel Clock		51.324 MHz
Frame rate full frame		31 frames/sec.
Active area		4.86 (h) x 3.63 (v) mm
Cell size		3.75 (h) x 3.75 (v) μm
Active pixels		1296 (h) x 966 (v)
Read-out modes	Full Full - High frame rate Variable partial scan  Vertical binning	1296 (h) x 966 (v) 31.484 fps 1296 (h) x 966 (v) 62.9 fps Programmable start line: 0 to 958 Programmable height: 8 to 966 lines 1296 (h) x 483 (v) 53 fps
Sensitivity		0.1 Lux (max. gain, shutter off, 50% video)
S/N ratio		>54dB (0 dB gain, 10-bit)
Video output		8, 10 or 12-bit – single or dual-channel
Auto-iris lens video		0.7 Vp-p, w/o sync
Gain	Master gain AGC	0 dB to +21 dB 0 dB to +21 dB (range adjustable)
Synchronization		Int. X-tal
GPIO Module	Input/output switch Clock generator (one) Pulse generator (four)	Configurable 25-in/14-out switch 12-bit counter based on pixel clock 20-bit counters with programmable length, start point, stop point, repeat
Hardware trigger modes		Edge Pre-select, Pulse Width Control, Reset Continuous, Frame Delay, Sequence, PIV
Electronic shutter	Exposure time Abs  Pulse Width Control GPIO plus Pulse Width Auto shutter	0.4L (11.49 μs) to 982L (31.761 ms) in 1L steps (28.725 μs) 1/13,000 sec. (2.4L) to 2 sec. Fine adjustment via GPIO 1/31 to 1/366 sec. (982L to 95L)
LUT/Gamma		8 presets (1.0 to 0.45) or LUT
Functions controlled via GigE Vision interface		Shutter, gain, black level, trigger mode, read-out mode, GPIO setup, ROI (GenICam mandatory functions)
GigE streaming protocol		Packet size (1476 to 16020 bytes), delayed (frame) read-out, inter-packet delay
Indicators on rear panel		Power/hardware trigger, GigE link / activity
Operating Temperature		-5°C to +45°C
Humidity (operation)		20 to 80% non-condensing
Storage temp./humidity		-25°C to +60°C / 20 to 80% non-condensing
Vibration		3 G (15Hz to 200 Hz XYZ)
Shock		50G
Regulations		CE (EN 61000-6-2, EN-61000-6-3), FCC part 15 class B, RoHS
Power		12-24V DC ± 10%. 8.0 W typical (full frame @ 12V)
Lens mount		C-mount (Max 4.0 mm thread)*
Dimensions (H x W x L)		55(H) x 55(W) x 98.3(D) mm
Weight		340 g
* Use 3CCD-type lens		

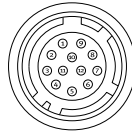
## High Dynamic Range Output

By altering the shutter/gain settings of the two CCDs and fusing the two synchronized video streams either in-camera or during post-processing, the AD-131GE can provide more than double the dynamic range of standard CCD cameras (up to ~120 dB) but

in a linear fashion that avoids the noise, shutter, and compression issues found in typical CMOS-based logarithmic or LinLog™ high dynamic range cameras. For more information, read the HDR tech note available at [www.jai.com](http://www.jai.com)

## Connector pin-out

### DC In / GPIO



HIROSE HR10A-10R-12PB-01

- Pin
- 1 Ground
  - 2 +12V DC input
  - 3 OPT In 2 (-)/GND (\*)
  - 4 OPT In 2 (+)
  - 5 Auto Iris video out (\*)
  - 6 OPT In 1 (-)
  - 7 OPT In 1 (+)
  - 8 OPT Out 1 (-)
  - 9 OPT Out 1 (+)
  - 10 OPT Out 2 (-)
  - 11 OPT Out 2 (+)
  - 12 +12V DC input

\* Select by SW700

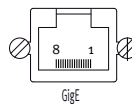
### GPIO



HIROSE 6-pin

- Pin
- 1 LVDS In 1 (-)
  - 2 LVDS In (+)
  - 3 TTL In 1 / 75 Ω terminator\*
  - 4 TTL Out 1 / open collector\*
  - 5 TTL In 2 / 75 Ω terminator\*
  - 6 GND

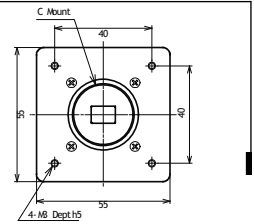
### GigE Vision Interface RJ-45 with locking screws



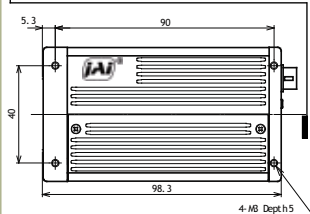
- | Pin       | Pin       |
|-----------|-----------|
| 1 TRD+(0) | 5 TRD-(2) |
| 2 TRD-(0) | 6 TRD-(1) |
| 3 TRD+(1) | 7 TRD+(3) |
| 4 TRD+(2) | 8 TRD-(3) |

## Dimensions

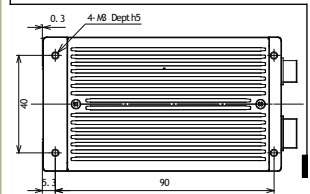
### Front view



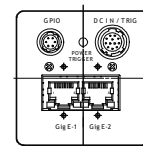
### Side view



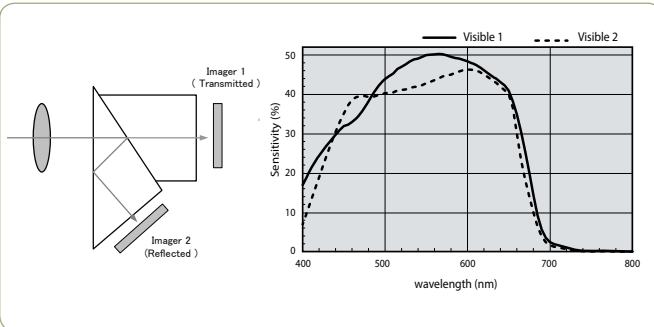
### Bottom view



### Rear view



## 2CCD Prism



## Ordering Information

AD-131GE Digital 2CCD monochrome high dynamic range camera

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